

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**



SEQUENCE LISTING

~~#17~~

<110> MICHIGAN STATE UNIVERSITY

<120> XYLOGLUCAN FUCOSYLTRANSFERASES

<130> MS00-001C2

<140> US 10/037,311

<141> 2001-11-09

<150> US60/117,555

<151> 1999-01-28

<160> 15

<170> PatentIn version 3.1

<210> 1

<211> 558

<212> PRT

<213> Arabidopsis thaliana

<400> 1

Met Asp Gln Asn Ser Tyr Arg Arg Arg Ser Ser Pro Ile Arg Thr Thr
1 5 10 15

Thr Gly Gly Ser Lys Ser Val Asn Phe Ser Glu Leu Leu Gln Met Lys
20 25 30

Tyr Leu Ser Ser Gly Thr Met Lys Leu Thr Arg Thr Phe Thr Thr Cys
35 40 45

Leu Ile Val Phe Ser Val Leu Val Ala Phe Ser Met Ile Phe His Gln
50 55 60

His Pro Ser Asp Ser Asn Arg Ile Met Gly Phe Ala Glu Ala Arg Val
65 70 75 80

AI

Leu Asp Ala Gly Val Phe Pro Asn Val Thr Asn Ile Asn Ser Asp Lys
 85 90 95

Leu Leu Gly Gly Leu Leu Ala Ser Gly Phe Asp Glu Asp Ser Cys Leu
 100 105 110

Ser Arg Tyr Gln Ser Val His Tyr Arg Lys Pro Ser Pro Tyr Lys Pro
 115 120 125

Ser Ser Tyr Leu Ile Ser Lys Leu Arg Asn Tyr Glu Lys Leu His Lys
 130 135 140

Arg Cys Gly Pro Gly Thr Glu Ser Tyr Lys Lys Ala Leu Lys Gln Leu
 145 150 155 160

Asp Gln Glu His Ile Asp Gly Asp Gly Glu Cys Lys Tyr Val Val Trp
 165 170 175

Ile Ser Phe Ser Gly Leu Gly Asn Arg Ile Leu Ser Leu Ala Ser Val
 180 185 190

Phe Leu Tyr Ala Leu Leu Thr Asp Arg Val Leu Leu Val Asp Arg Gly
 195 200 205

Lys Asp Met Asp Asp Leu Phe Cys Glu Pro Phe Leu Gly Met Ser Trp
 210 215 220

Leu Leu Pro Leu Asp Phe Pro Met Thr Asp Gln Phe Asp Gly Leu Asn
 225 230 235 240

Gln Glu Ser Ser Arg Cys Tyr Gly Tyr Met Val Lys Asn Gln Val Ile
 245 250 255

Asp Thr Glu Gly Thr Leu Ser His Leu Tyr Leu His Leu Val His Asp
 260 265 270

Tyr Gly Asp His Asp Lys Met Phe Phe Cys Glu Gly Asp Gln Thr Phe
 275 280 285

Ile Gly Lys Val Pro Trp Leu Ile Val Lys Thr Asp Asn Tyr Phe Val
 290 295 300

Pro Ser Leu Trp Leu Ile Pro Gly Phe Asp Asp Glu Leu Asn Lys Leu
 305 310 315 320

Phe Pro Gln Lys Ala Thr Val Phe His His Leu Gly Arg Tyr Leu Phe
 325 330 335

His Pro Thr Asn Gln Val Trp Gly Leu Val Thr Arg Tyr Tyr Glu Ala

340	345	350
Tyr Leu Ser His Ala Asp Glu Lys Ile Gly Ile Gln Val Arg Val Phe		
355	360	365
Asp Glu Asp Pro Gly Pro Phe Gln His Val Met Asp Gln Ile Ser Ser		
370	375	380
Cys Thr Gln Lys Glu Lys Leu Leu Pro Glu Val Asp Thr Leu Val Glu		
385	390	395 400
Arg Ser Arg His Val Asn Thr Pro Lys His Lys Ala Val Leu Val Thr		
	405	410 415
Ser Leu Asn Ala Gly Tyr Ala Glu Asn Leu Lys Ser Met Tyr Trp Glu		
	420	425 430
Tyr Pro Thr Ser Thr Gly Glu Ile Ile Gly Val His Gln Pro Ser Gln		
	435	440 445
Glu Gly Tyr Gln Gln Thr Glu Lys Lys Met His Asn Gly Lys Ala Leu		
	450	455 460
Ala Glu Met Tyr Leu Leu Ser Leu Thr Asp Asn Leu Val Thr Ser Ala		
465	470	475 480
Trp Ser Thr Phe Gly Tyr Val Ala Gln Gly Leu Gly Gly Leu Lys Pro		
	485	490 495
Trp Ile Leu Tyr Arg Pro Glu Asn Arg Thr Thr Pro Asp Pro Ser Cys		
	500	505 510
Gly Arg Ala Met Ser Met Glu Pro Cys Phe His Ser Pro Pro Phe Tyr		
	515	520 525
Asp Cys Lys Ala Lys Thr Gly Ile Asp Thr Gly Thr Leu Val Pro His		
	530	535 540
Val Arg His Cys Glu Asp Ile Ser Trp Gly Leu Lys Leu Val		
545	550	555

<210> 2

<211> 1662

<212> DNA

<213> Arabidopsis thaliana

<400> 2

atggatcaga attcgtacag gagaagatcg tctccgatca gaaccactac cggcgggttca	60
aagtccgtta atttctccga actacttcaa atgaagtatc tcagctccgg tacgatgaag	120
ctcacgagaa ccttcactac ttgcttgata gtcttctctg tactagtagc attctcaatg	180
atctttcacc aacacccatc tgattcaaat cggattatgg gtttcgccga agctagagtt	240
ctcgacgccg gagttttccc aaattctgat aagcttctcg gagggctact tgcttctggg	300
tttgatgaag attcttgccct tagtaggtac caatcagttc attaccgtaa accttcacct	360
tacaagccat cttcttatct catctctaag cttagaaact acgaaaagct tcacaagcga	420
tgtgggtccg gtactgaatc ttacaagaaa gctctaaaac aacttgatca agaacatatt	480
gatggtgatg gtgaatgcaa atatggtgtg tggatttctt ttagcggctt agggaaacagg	540
atactttctc tagcctcggg ttttctttac gcgcttttaa cggatagagt cttgcttggt	600
gaccgagggg aagacatgga tgatctcttt tgcgagccgt ttctcgggtat gtcgtggtg	660
ctacctttag atttccctat gactgatcag tttgatggat taaatcaaga atcatctcgt	720
tgttatggat atatggtgaa gaatcaggtg attgatactg agggaaactt gtctcatctt	780
tatcttcac tttgtcatga ttatggagat catgataaga tgttcttctg tgaaggagac	840
caaacattca tcgggaaagt cccttggttg attgttaaaa cagacaatta ctttgttcca	900
tctctgtggt taataccggg tttcgatgat gaactaaaca agctattccc acagaaagcg	960
actgtctttc atcacttagg taggtatctt tttcacccaa ctaaccaagt atggggctta	1020
gtcactagat actacgaagc ttacttatcg catgcggatg agaagattgg gattcaagta	1080
agagttttcg atgaagacc ggggccattt cagcatgtga tggatcagat ttcattctgt	1140
actcaaaaag agaaacttct acctgaagta gacacactag tggagagatc tcgccatggt	1200
aataccccca aacacaaagc cgtgcttggt acatctttga acgcggttga cgcgggagac	1260
ttaaagagta tgtattggga atatccgaca tcaactggag aaatcatcgg tgttcacgag	1320
ccgagccaag aagggtatca gcagaccgaa aaaaagatgc ataatggcaa agctcttgcg	1380
gaaatgtatc ttttgagttt gacagataat cttgtgacaa gtgcttggtc tacatttgga	1440
tatgtagctc aagggtcttg aggttttaaag ccttggtatc tctatagacc cgaaaaccgt	1500
acaactcccc atccttcgtg tggtcgggct atgtcgatgg agccttggtt ccaactgcct	1560
ccattctatg attgtaaagc gaaaacgggt attgacacgg gaacactagt tcctcatgtg	1620
agacattgtg aggatatcag ctggggactt aagctagtat ga	1662

<210> 3

<211> 1953

<212> DNA

<213> Arabidopsis thaliana

<400> 3

atggatcaga attcgtacag gagaagatcg tctccgatca gaaccactac cggcgggttca	60
aagtccgtta atttctccga actacttcaa atgaagtatc tcagctccgg tacgatgaag	120
ctcacgagaa ccttcactac ttgcttgata gtcttctctg tactagtagc attctcaatg	180
atctttcacc aacacccatc tgattcaaat cggattatgg gtttcgccga agctagagtt	240
ctcgacgccg gagttttccc aaatgttact aacatcagta tgtgttcttc caagtcaaag	300
ttttgagctt tattacttta gatctcgttc ttacactac gcatttgcct ctgtatgtcc	360
atagctcttg gtcgatttca atttgagatc tatactcata aaaattgagt ctttgtcagt	420
cacaagacta ctatttttgg ttgatgttg ttttggtgaa aaagtgtctt tttgttttgg	480
tctcagctta gactgttaca ttcgtttttt ccgagttttt tagattttgt tctgattctg	540
ttttgttttg tagattctga taagcttctc ggagggctac ttgcttctgg ttttgatgaa	600
gattcttgcc ttagtaggta ccaatcagtt cattaccgta aaccttcacc ttacaagcca	660
tcttcttctc tcactctctaa gcttagaaac tacgaaaagc ttcacaagcg atgtgggtccg	720
ggtactgaat cttacaagaa agctctaaaa caacttgatc aagaacatat tgatgggtgat	780
ggtgaatgca aatatgttgt gtggatttct ttttagcggc tagggaacag gatactttct	840
ctagcctcgg tttttcttta cgcgctttta acggatagag tcttgcttgt tgaccgaggg	900
aaagacatgg atgatctctt ttgcgagccg tttctcggta tgcgtgggtt gctaccttta	960
gatttcccta tgactgatca gtttgatgga ttaaatacaag aatcatctcg ttgttatgga	1020
tatatggtga agaatacaggt gattgatact gagggaaactt tgtctcatct ttatcttcat	1080
cttgttcatg attatggaga tcatgataag atgttcttct gtgaaggaga ccaaacttc	1140
atcgggaaag tcccttggtt gattgttaaa acagacaatt actttgttcc atctctgtgg	1200
ttaataccgg gtttcgatga tgaactaaac aagctattcc cacagaaagc gactgtcttt	1260
catcacttag gtaggtatct ttttcacca actaaccaag tatggggctt agtcactaga	1320
tactacgaag cttacttctc gcatgcggat gagaagattg ggattcaagt aagagttttc	1380
gatgaagacc cgggtccatt tcagcatgtg atggatcaga tttcatcttg tactcaaaaa	1440
gagaaaacttc tacctgaagt agacacacta gtggagagat ctgccatgt taataccccc	1500
aaacacaaaag ccgtgcttgt cacatctttg aacgcgggtt acgcggagaa cttaaagagt	1560
atgtattggg aatatccgac atcaactgga gaaatcatcg gtgttcatca gccgagccaa	1620
gaagggttatc agcagaccga aaaaaagatg cataatggca aagctcttgc ggaaatgtat	1680
cttttgagtt tgacagataa tcttgtgaca agtgcttggt ctacatttgg atatgtagct	1740
caaggctctg gaggtttaaa gccttgata ctctatagac ccgaaaaccg tacaactccc	1800
gatccttcgt gtggtcgggc tatgtcgatg gagccttggt tccactcgcc tccattctat	1860
gattgtaaag cgaaaacggg tattgacacg ggaacactag ttcctcatgt gagacattgt	1920
gaggatatca gctggggact taagctagta tga	1953

<210> 4

<211> 1684

<212> DNA

<213> *Arabidopsis thaliana*

<400> 4

atgagaatca cagagatctt agctttgttc atggtttttag tccctgtctc gctagtaatc	60
gtagccatgt ttggatatga tcaaggaaat ggctttgtac aagcatctag attcataaca	120
atggaaccaa atgtgacatc ctcatcagat gattcatcac tagtgcagag agatcaagaa	180
caaaaaggta aacttacttt cttctttttg ttttgaaatg tttctaaatt tttctttgaa	240
tgtttcatca gattctgtag atatgtctct gcttggaggg ctacttgtat ctggtttcaa	300
gaaagagtct tgcttgagta gataccaatc ttacctctac cgtaaagctt caccgtataa	360
accttcgttg catctacttt cgaagcttag agcttacgaa gagcttcata aaagatgtgg	420
accgggaaca agacagtata ccaatgcaga aagattgctt aaacagaaac aaacaggtga	480
gatggaatca caaggatgca agtatgttgt ttggatgtcg tttagcggat taggaaacag	540
gattatcagt attgcttctg tgtttctgta tgcaatgttg acagatagag tcttgcttgt	600
tgaaggaggg gaacagttcg cggatttatt ctgcgaaccg ttctctgata ccacttggtt	660
actaccgaaa gatttcacct tagctagtca gttcagtggc tttggtcaaa actcagctca	720
ctgccatgga gatatgctga agaggaaact gattaatgaa tcctctgttt cgtctctgtc	780
tcattctctat cttcatctag ctcatgacta caatgagcac gacaaaatgt tcttctgtga	840
agaagatcaa aatctcttaa agaatgttcc ttggttgatc atgaggacaa acaacttctt	900
tgcaccgtct cttttcttga tttcttcttt cgaagaagag ctcggtatga tgtttccoga	960
gaaaggaacg gtttttcacc atttaggtcg ttaccttttc catccttcaa atcaagtctg	1020
gggactaatc acaagatact atcaagctta cttagccaaa gctgatgaaa ggattggtct	1080
tcaaataaga gtctttgatg agaaatccgg cgtatctcct cgagtcacaa agcaaatcat	1140
ttcgtgtgtt caaaacgaga atctgttacc gagactaagc aaaggtgaag aacaatacaa	1200
gcagccatca gaagaagagt tgaaactcaa atctgtcttg gtcacctctt taacaacagg	1260
atactttgag atcttgaaaa caatgtattg ggaaaatcca actgtaacaa gagatgtgat	1320
tggaatacat cagccaagtc atgaaggaca tcaacaaaca gagaagctaa tgcataacag	1380
gaaagcttgg gcagagatgt acttactcag cttaacggat aagttgggta ttagtgcttg	1440
gtctacatth ggttatgtag ctcaaggact tggaggatta agagcttgga ttctgtataa	1500
acaagagaat caaaccaacc caaatccacc ttgcggtaga gctatgtcac cagatccttg	1560
tttccatgct cctccttact atgattgcaa agcaaagaaa ggaactgaca ctggtaatgt	1620

tgtcccgcat gttagacatt gtgaagatat tagctgggga cttagcttg ttgacaactt 1680
 ttag 1684

<210> 5

<211> 538

<212> PRT

<213> Arabidopsis thaliana

<400> 5

Met Arg Ile Thr Glu Ile Leu Ala Leu Phe Met Val Leu Val Pro Val
 1 5 10 15

Ser Leu Val Ile Val Ala Met Phe Gly Tyr Asp Gln Gly Asn Gly Phe
 20 25 30

Val Gln Ala Ser Arg Phe Ile Thr Met Glu Pro Asn Val Thr Ser Ser
 35 40 45

Ser Asp Asp Ser Ser Leu Val Gln Arg Asp Gln Glu Gln Lys Asp Ser
 50 55 60

Val Asp Met Ser Leu Leu Gly Gly Leu Leu Val Ser Gly Phe Lys Lys
 65 70 75 80

Glu Ser Cys Leu Ser Arg Tyr Gln Ser Tyr Leu Tyr Arg Lys Ala Ser
 85 90 95

Pro Tyr Lys Pro Ser Leu Leu Leu Ser Lys Leu Arg Ala Tyr Glu Glu
 100 105 110

Leu His Lys Arg Cys Gly Pro Gly Thr Arg Gln Tyr Thr Asn Ala Glu
 115 120 125

Arg Leu Leu Lys Gln Lys Gln Thr Gly Glu Met Glu Ser Gln Gly Cys
 130 135 140

Lys Tyr Val Val Trp Met Ser Phe Ser Gly Leu Gly Asn Arg Ile Ile
 145 150 155 160

Ser Ile Ala Ser Val Phe Leu Tyr Ala Met Leu Thr Asp Arg Val Leu
 165 170 175

Leu Val Glu Gly Gly Glu Gln Phe Ala Asp Leu Phe Cys Glu Pro Phe
 180 185 190

Leu Asp Thr Thr Trp Leu Leu Pro Lys Asp Phe Thr Leu Ala Ser Gln

195					200					205					
Phe	Ser	Gly	Phe	Gly	Gln	Asn	Ser	Ala	His	Cys	His	Gly	Asp	Met	Leu
	210					215					220				
Lys	Arg	Lys	Leu	Ile	Asn	Glu	Ser	Ser	Val	Ser	Ser	Leu	Ser	His	Leu
225					230					235					240
Tyr	Leu	His	Leu	Ala	His	Asp	Tyr	Asn	Glu	His	Asp	Lys	Met	Phe	Phe
				245					250					255	
Cys	Glu	Glu	Asp	Gln	Asn	Leu	Leu	Lys	Asn	Val	Pro	Trp	Leu	Ile	Met
			260					265					270		
Arg	Thr	Asn	Asn	Phe	Phe	Ala	Pro	Ser	Leu	Phe	Leu	Ile	Ser	Ser	Phe
		275					280					285			
Glu	Glu	Glu	Leu	Gly	Met	Met	Phe	Pro	Glu	Lys	Gly	Thr	Val	Phe	His
	290					295					300				
His	Leu	Gly	Arg	Tyr	Leu	Phe	His	Pro	Ser	Asn	Gln	Val	Trp	Gly	Leu
305					310					315					320
Ile	Thr	Arg	Tyr	Tyr	Gln	Ala	Tyr	Leu	Ala	Lys	Ala	Asp	Glu	Arg	Ile
				325					330					335	
Gly	Leu	Gln	Ile	Arg	Val	Phe	Asp	Glu	Lys	Ser	Gly	Val	Ser	Pro	Arg
			340					345					350		
Val	Thr	Lys	Gln	Ile	Ile	Ser	Cys	Val	Gln	Asn	Glu	Asn	Leu	Leu	Pro
		355					360					365			
Arg	Leu	Ser	Lys	Gly	Glu	Glu	Gln	Tyr	Lys	Gln	Pro	Ser	Glu	Glu	Glu
	370					375					380				
Leu	Lys	Leu	Lys	Ser	Val	Leu	Val	Thr	Ser	Leu	Thr	Thr	Gly	Tyr	Phe
385					390					395					400
Glu	Ile	Leu	Lys	Thr	Met	Tyr	Trp	Glu	Asn	Pro	Thr	Val	Thr	Arg	Asp
				405					410					415	
Val	Ile	Gly	Ile	His	Gln	Pro	Ser	His	Glu	Gly	His	Gln	Gln	Thr	Glu
			420					425					430		
Lys	Leu	Met	His	Asn	Arg	Lys	Ala	Trp	Ala	Glu	Met	Tyr	Leu	Leu	Ser
		435					440					445			
Leu	Thr	Asp	Lys	Leu	Val	Ile	Ser	Ala	Trp	Ser	Thr	Phe	Gly	Tyr	Val
	450					455					460				

Ala Gln Gly Leu Gly Gly Leu Arg Ala Trp Ile Leu Tyr Lys Gln Glu
465 470 475 480

Asn Gln Thr Asn Pro Asn Pro Pro Cys Gly Arg Ala Met Ser Pro Asp
485 490 495

Pro Cys Phe His Ala Pro Pro Tyr Tyr Asp Cys Lys Ala Lys Lys Gly
500 505 510

Thr Asp Thr Gly Asn Val Val Pro His Val Arg His Cys Glu Asp Ile
515 520 525

Ser Trp Gly Leu Lys Leu Val Asp Asn Phe
530 535

<210> 6

<211> 252

<212> DNA

<213> Arabidopsis thaliana

<220>

<221> misc_feature

<222> (10)..(10)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (101)..(101)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (133)..(133)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (147)..(147)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (168)..(168)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (197)..(197)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (215)..(215)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (29)..(29)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (61)..(61)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (92)..(92)

<223> "n" is A, C, G, or T

<400> 6

tggtccatch ttatggttta atccaactnt ccaaaccgaa ctaacgaagc tgtttccgca

naaagaaacc gtgtttcacc acttgggtcg gnatcttttt naccctaaaa atcaagtttg 120
ggatatcgtc acnaagtact accatgntca cttatccaaa gcagatgnga gactcgggat 180
tcaaattcgg gtttttngcg atcaagggtgg atacnaccaa cacgtcatgg accaggtcat 240
atcctgcaca ca 252

<210> 7

<211> 83

<212> PRT

<213> Arabidopsis thaliana

<220>

<221> misc_feature

<222> (10)..(10)

<223> "X" is any amino acid

<220>

<221> misc_feature

<222> (20)..(20)

<223> "X" is any amino acid

<220>

<221> misc_feature

<222> (31)..(31)

<223> "X" is any amino acid

<220>

<221> misc_feature

<222> (34)..(34)

<223> "X" is any amino acid

<220>

<221> misc_feature

<222> (49)..(49)

<223> "X" is any amino acid

<220>

<221> misc_feature

<222> (56)..(56)

<223> "X" is any amino acid

<220>

<221> misc_feature

<222> (66)..(66)

<223> "X" is any amino acid

<220>

<221> misc_feature

<222> (72)..(72)

<223> "X" is any amino acid

<400> 7

Val Pro Ser Leu Trp Phe Asn Pro Thr Xaa Gln Thr Glu Leu Thr Lys
1 5 10 15

Leu Phe Pro Xaa Lys Glu Thr Val Phe His His Leu Gly Arg Xaa Leu
20 25 30

Phe Xaa Pro Lys Asn Gln Val Trp Asp Ile Val Thr Lys Tyr Tyr His
35 40 45

Xaa His Leu Ser Lys Ala Asp Xaa Arg Leu Gly Ile Gln Ile Arg Val
50 55 60

Phe Xaa Asp Gln Gly Gly Tyr Xaa Gln His Val Met Asp Gln Val Ile
65 70 75 80

Ser Cys Thr

<210> 8

<211> 512

<212> DNA

<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (146)..(146)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (190)..(190)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (195)..(195)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (224)..(224)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (263)..(263)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (29)..(29)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (354)..(354)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (382)..(383)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (397)..(397)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (4)..(4)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (408)..(408)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (426)..(426)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (433)..(434)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature
 <222> (438)..(438)
 <223> "n" is A, C, G, or T

<220>

<221> misc_feature
 <222> (454)..(454)
 <223> "n" is A, C, G, or T

<220>

<221> misc_feature
 <222> (481)..(481)
 <223> "n" is A, C, G, or T

<220>

<221> misc_feature
 <222> (489)..(489)
 <223> "n" is A, C, G, or T

<220>

<221> misc_feature
 <222> (511)..(511)
 <223> "n" is A, C, G, or T

<400> 8
 tgggnattaca gattacaaag atacgaggnt cttcatagac gttgtggacc attcactaga 60
 tcctataact taacacttga caaactcaag tcgggagatc ggtctgacgg tgaagtttct 120
 ggttgtagat atgtaatatg gttganttcc aatggtgatc ttgggaatag gatgctgagt 180
 ctagcttcan ctttntcttta tgctctcttta acaaataaggt ttttacttgt cgaactagga 240
 gttgacatgg ctgatctttt ctncgagcca tttccaaaca ctacttggtt tcttccccca 300
 gagtttccgc tcaacagcca cttcaacgag caagtctctt tctaacggaa attnttggca 360
 accccgatgg gttcataatc gnncatgtag ttccgtnatt cccagtgnc aacaaaaagc 420
 tttttntttt tgnnaggnta gccaaagtttt tttnggggaa accccctggt tgtcttaaaa 480
 ncgggtagnt tttttttccc aacttttttt na 512

<210> 9

<211> 668

<212> DNA

<213> *Arabidopsis thaliana*

<400> 9

```
caagcttaca agaaagcaac ggagattcctt ggtcatgatg atgagaatca ttcaacccaaa      60
tctgttggtg aatgcagata cattgtgtgg attgctgttt atgggctagg aaacagaata      120
cttactcttg cttctctggt tctctatgct ctcttgactg acagaatcat gcttggtgac      180
caacgtacgg acataagtga cctcttctgt gagccttttc caggctacttc ctggctactc      240
cctctgggatt ttccactaac agatcaatta gatagcttca acaaggaatc tccgcgctgt      300
tacggaacaa tggtgaagaa tcatgccatt aactcaacta caacagaaag catcatcccc      360
tcgtacctct gtctttatct tattcacgat tacgacgatt atgataagat gttcttctgt      420
gaaagtgacc aaattctcat caggcaagtc ccttggttgg tcttcaactc gaatctttac      480
tttatcccat ctctatgggt gatcccttct tttcagtcag aattaagcaa gctattccca      540
cagaaagaaa ccgtctttca ccatttgggt cgctatcttt ttcacccgac taaccaagtt      600
tggggcatga tcacaagatc ctataatggg tatttatcaa gagctgatga gagacttggg      660
attcaagt                                         668
```

<210> 10

<211> 671

<212> DNA

<213> *Arabidopsis thaliana*

<400> 10

```
ttctcctttt gacctttttt tttgttatat gttcagacga atccgaaaca ccggggcggg      60
atagactaat aggagggctt ttaaccgcag atttcgatga aggttcttgc ttgagtaggt      120
atcataaaac tttcttgat cgcaagcctt caccatacaa gccgtctgaa tatcttgtct      180
cgaagcttag aagctatgag atgcttcaca aacgttgctg tccagggaca aaagcttaca      240
aggaagcaac aaagcatctt agtcatgatg agaattataa tgcaagcaaa tcagatgggtg      300
aatgccgata cgttggtgtg ctcgctgatt acgggcttgg aaaccgacta ctactcttg      360
cttctgtggt cctctacgct ctcttgactg atagaatcat tcttggtgac aaccgcaagg      420
atattgggtga tctcttatgc gagccatttc caggctacttc atggttgctt cctctcgact      480
ttccattgat gaaatatgct gatggatacc acaagggata ctctcgttgt tacggaacaa      540
```

tggttgaaaa tcattccatc aactcgactt cattccccgcc acatctatat aggcataacc 600
ttcatgattc aagggatagt gataagatgt tcttctgccaa aaaagatcaa agtttgattg 660
acaaagtccc t 671

<210> 11

<211> 785

<212> DNA

<213> Arabidopsis thaliana

<220>

<221> misc_feature

<222> (148)..(148)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (150)..(150)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (221)..(221)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (248)..(248)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (330)..(330)

<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (382)..(382)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (410)..(410)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (422)..(422)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (451)..(451)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (502)..(502)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (509)..(509)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (528)..(528)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (539)..(539)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (549)..(549)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (647)..(647)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (650)..(650)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (659)..(659)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (701)..(702)

<223> "n" is A, C, G, or T

<400> 11

gggggggatg gttactgact cctatatgcc gaatctttga catctctgtt tcaatggcca

60

caatcctatt gaatcagcta tattaagaa aattataact catcaaataag cttaagacca	120
tcgttcccccac gatcctcaca atgccttnen agaggaacta ccttcccga gttagttccc	180
cattcgggtt cacatccatg agacggaaga gtaagggtgac natgggtccat cgacgtggat	240
tgaatacnct gtggatcagg agctgtacga cctgctggct gataaagtaa ccatggcttt	300
aatcctccaa gaatatgagc aacatatccn aatgtagacc ttgcacttgt gactatttta	360
tcagttagac ttagaagata cntctcggcg agcgccctttt ggtcgtgtan cttcttgtct	420
tntgttgaac cttttctcca cttggctgat naacttcaat gatctcccct gctgaactcg	480
gtcgttccca atacatgttc tntaaggtn cagagtactc tggatacnaa gatgtgacna	540
gaacagctnt aagtgtctgg cttcttgaat atatgacttt tggctcttct tgtgcacctt	600
gttcaggcaa aaggctcttc ttctgtcca acttacaact tgatccnttn cctgttaana	660
tttccccctc gaatgctgaa ctacccttc tctaataacc nncctctcct ccgctcctga	720
ataacttcgg cttgctagaa ttctctcatt cacctcccca cttgaacccc cccgcggtac	780
aaacc	785

<210> 12

<211> 529

<212> DNA

<213> Arabidopsis thaliana

<220>

<221> misc_feature

<222> (276)..(276)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (361)..(361)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (386)..(386)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (409)..(409)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (433)..(433)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (481)..(481)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (490)..(490)

<223> "n" is A, C, G, or T

<400> 12

attcgtgatg agtactatgc aagcgaatca aatggtgact gcagatacat tgtatggcta	60
gctagggacg ggcttggaaa cagattaatt actcttgctt ccgtgtttct ctacgctatc	120
ttgactgaga gaatcattct tgttgacaac cgcaaggatg ttagtgatct cttatgtgag	180
ccatttccag gtacttcatg gttgcttccg cttgactttc caatgctgaa ttatacttat	240
gcttatggct acaataagga atacctcgtt gttacngtac aatgttggaa aatcatgcca	300
tcaactcgac ttcaattccg ccacatctat atctccataa catccatgaa tctagggata	360
ntgataagct gttcttctgc caaaanggat caaagttttt tatcgacana tttccatggg	420
taaattaatt canaaccaat gccttacttt gggtcccaat ctttatgggc tgaaatccca	480
ncttttccan accaaaaact aagtttaagc ttatccccgg cagaaaagg	529

<210> 13

<211> 290

<212> DNA

<213> Arabidopsis thaliana

<400> 13
aatggtgatc ttgggaatag gatgctgagt ctagcttcag cttttcttta tgctctctta 60
acaaataggt tttacttgt cgaactagga gttgacatgg ctgacctttt ctgcaagcca 120
tttccaaaca ctacttggtt tctcccccca gagtttccgc tcaacagcca cttcaacgag 180
cagtctcttc tacgcaattc tggcaaccgc atggttgcac atcgacatgt agttcgtgaa 240
ttccagtgc caacaaaagc ttttcttttg tgaggatagt caagttttgt 290

<210> 14

<211> 207

<212> DNA

<213> Arabidopsis thaliana

<400> 14
caagcttcga gacaagatat tcagacggct tgtatggtga aggcttgcca tacaagaaag 60
ttttatgata cctactcaag caagaacctt catcgaaatc tgcggttaaa agccctccta 120
ttagtctatc ccgccccggt gtttcggatt cgtctgaaca tataacaaaa aaaaagggtca 180
aaaggagaat tcttttgagct aacaatg 207

<210> 15

<211> 531

<212> DNA

<213> Arabidopsis thaliana

<220>

<221> misc_feature

<222> (12)..(12)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (147)..(147)

<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (153)..(153)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (159)..(159)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (16)..(16)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (168)..(168)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (205)..(205)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (27)..(27)
<223> "n" is A, C, G, or T

<220>
<221> misc_feature
<222> (275)..(275)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (4)..(5)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (50)..(50)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (53)..(53)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (72)..(73)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (81)..(81)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (87)..(87)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (98)..(98)

<223> "n" is A, C, G, or T

<220>

<221> misc_feature

<222> (118)..(118)

<223> "n" is A, C, G, or T

<400> 15

aaanncctta ancaantttt accgaantca aggcgtttac ccacttctcn ccnggtttta	60
aggttcaggg cnnttttttg naaccnaca gtgatggnga gttatccgcg ttcacaancc	120
gactacaagg cttccaaaaa cccccngnga acntggaant taagaganca tggctgagat	180
ataccttctg agttgttctg atgcnctggt ggtcacaggt ttatggtcct cactcgtgga	240
ggttgcctca tggccttgga ggggtgaagc catgngtggt gaacaaagct gagaatggga	300
ctgcccata gaacttactgt gtgaaagcaa gatcaataga gccctgttcc caagcgacat	360
tgttccatgg ctgtaaagat tgaaacatga atagagtctc gagggctttt tttgccttta	420
atagatgttg tacgggtcaag aatttcagag ttgccaata gacacgtaag gaatattagg	480
attaactatg tatcagttca tgacttgatc gagttctata ttcttttcaa t	531